

**WHAT IS CLAIMED IS:**

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1       1. An active electrode, comprising:

2

an active electrode filament and an active electrode head located at  
3 the distal end of the active electrode filament, the active electrode head comprising a  
4 coil of wire, the coil comprising from about 0.5 to 1.5 turns of the wire, the distal  
5 end of the wire defining a dividing portion, and the dividing portion located within  
6 the coil.

7

1       2. The active electrode of claim 1, wherein the dividing portion

2

bisects the coil to form a first void and a second void within the coil.

3

1       3. The active electrode of claim 2, wherein the first void and the

2

second void are adapted for retaining a liquid therein.

3

1       4. The active electrode of claim 1, wherein the dividing portion

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is arranged at an angle of about 45° to the longitudinal axis of the active electrode  
3 filament.

4

1       5. The active electrode of claim 1, wherein the wire comprises a

2

material selected from the group consisting of molybdenum, platinum, tungsten,  
3 palladium, iridium, titanium, and their alloys.

4

1       6. The active electrode of claim 1, wherein the wire has a

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diameter in the range of from about 0.006 inch to 0.020 inch.

3

1       7. A return electrode, comprising:

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a return electrode filament and a return electrode head located at the  
3 distal end of the return electrode filament, the return electrode head comprising a  
4 coil of wire, the coil comprising from about 3 to 10 turns.

5

1               8.     The return electrode of claim 7, wherein the distal end of the  
2 wire terminates within the return electrode coil at the return electrode coil proximal  
3 end.

4

1               9.     The return electrode of claim 7, wherein the return electrode  
2 filament is adapted for direct insertion in a connection block of an electrosurgical  
3 probe.

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1               10.    The return electrode of claim 7, wherein the wire comprises a  
2 material selected from the group consisting of molybdenum, platinum, tungsten,  
3 palladium, iridium, titanium, and their alloys.

4

1               11.    The return electrode of claim 7, wherein the wire has a  
2 diameter in the range of from about 0.008 inch to 0.030 inch.

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1               12.    A method of treating a target tissue of a patient, comprising:  
2               a) providing an electrosurgical probe having an active electrode and a  
3 return electrode, the return electrode comprising a return electrode coil, the return  
4 electrode coil having from about 3 to 10 turns, the active electrode adapted for  
5 ablating tissue via molecular dissociation of components of the tissue and for  
6 coagulating tissue;

7               b) positioning the active electrode in at least close proximity to the  
8 target tissue; and

9               c) applying a high frequency voltage between the active electrode and  
10 the return electrode, wherein at least a portion of the tissue at the target site is  
11 ablated or modified.

1               13.    The method of claim 12, wherein the active electrode  
2 comprises a flattened active electrode coil.

3

1               14.    The method of claim 13, further comprising:

2 d) during said step c) translating the active electrode coil in the plane  
3 of the active electrode coil with respect to the target tissue, wherein the target tissue  
4 is severed.

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15. The method of claim 13, further comprising:

2 e) during said step c), translating the active electrode coil in a  
3 direction orthogonal to the plane of the active electrode coil, wherein the target  
4 tissue is volumetrically removed.

5

16. The method of claim 13, further comprising:

2 f) during said step c), engaging at least one side of the active  
3 electrode coil against the target tissue, wherein the target tissue is coagulated.

4

1                   17. The method of claim 12, wherein the active electrode  
2 comprises a hook, a coil, or a disc.

3

18. The method of claim 12, further comprising:

2 g) prior to said step c), delivering an electrically conductive fluid to  
3 the return electrode coil.

4

19. The method of claim 18, wherein the probe includes a shaft  
2 having a shaft distal end, the electrically conductive fluid delivered axially from the  
3 shaft distal end via a fluid delivery port.

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20. The method of claim 19, wherein the electrically conductive fluid is delivered against interior and exterior surfaces of the return electrode coil.

5

21. The method of claim 12, further comprising:

h) aspirating unwanted materials from the surgical site via an aspiration lumen.

1                   22.    The method of claim 12, wherein the high frequency voltage  
2 applied in said step c) is in the range of from about 10 volts RMS to 500 volts RMS.  
3

1                   23.    The method of claim 12, wherein during said step c) the  
2 target tissue is exposed to a temperature in the range of from about 40° C to 90° C.  
3

1                   24.    The method of claim 12, wherein the probe includes a shaft,  
2 the shaft comprising a multi-lumen tube having a plurality of lumens therein.  
3

1                   25.    The method of claim 24, wherein the plurality of lumens  
2 include a first lumen and a second lumen, and the return electrode and the active  
3 electrode are arranged in the first lumen and the second lumen, respectively.  
4

1                   26.    The method of claim 24, wherein the multi-lumen tube  
2 comprises a polyurethane elastomer extrusion.  
3

1                   27.    A method of modifying a tissue at a target site of a patient,  
2 comprising:  
3

4                   a) providing an electrosurgical probe including a return electrode and  
5 an active electrode, the active electrode comprising a substantially flat active  
6 electrode head adapted for severing tissue via molecular dissociation of components  
7 of the tissue, the active electrode head including a dividing portion, the active  
8 electrode head having at least one void therein;

9                   b) positioning the active electrode head in at least close proximity to  
10 the tissue at the target site; and

11                  c) applying a high frequency voltage between the active electrode and  
12 the return electrode, the high frequency voltage sufficient to ablate or modify at  
13 least a portion of the tissue at the target site.

1                   28.    The method of claim 27, wherein the active electrode head  
2 comprises an active electrode coil having from about 0.5 to 1.5 turns.  
3

1           29. The method of claim 28, wherein the active electrode coil has  
2 a diameter in the range of from about 0.050 inch to 0.200 inch, and a width in the  
3 range of from about 0.003 inch to about 0.012 inch.

4

1           30. The method of claim 27, wherein the return electrode  
2 comprises a return electrode coil having from about 3 to about 10 turns.

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1           31. The method of claim 27, wherein said step c) effects localized  
2 molecular dissociation of tissue components at the target site.

3

1           32. The method of claim 27, further comprising:  
2           d) during said step c), reciprocating the active electrode head in the  
3 plane of the active electrode head with respect to the tissue, wherein the tissue is  
4 severed by localized molecular dissociation of tissue components.

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1           33. The method of claim 27, further comprising:  
2           e) during said step c), engaging at least one side of the active  
3 electrode head against a severed tissue, whereby the severed tissue is coagulated.

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1           34. An electrosurgical probe, comprising:  
2           a shaft having a shaft proximal end portion and a shaft distal end  
3 portion; and

4           an electrode assembly disposed on the shaft distal end portion, the  
5 electrode assembly comprising a return electrode and an active electrode, wherein  
6 the return electrode comprises a distal return electrode head having an open  
7 structure whereby the return electrode head allows the passage of an electrically  
8 conductive fluid therethrough.

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1                   35. The probe of claim 34, wherein the return electrode head has  
2 an internal void therethrough, and wherein the active electrode passes within the  
3 internal void.

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1                   36. The probe of claim 34, wherein the return electrode head is  
2 adapted for retaining an electrically conductive fluid thereon.

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1                   37. The probe of claim 36, wherein the electrically conductive  
2 fluid is retained on a surface of the return electrode head via surface tension.

3

1                   38. The probe of claim 34, wherein the return electrode head  
2 comprises a coil of wire.

3

1                   39. The probe of claim 34, wherein the return electrode head  
2 comprises a return electrode coil having up to about 50 turns.

3

1                   40. The probe of claim 34, wherein the active electrode comprises  
2 a distal active electrode head having at least one void therein.

3

1                   41. The probe of claim 40, wherein the active electrode head is  
2 adapted for retaining an electrically conductive fluid within the at least one void.

3

1                   42. The probe of claim 34, wherein the active electrode head  
2 comprises a metal disc or a flattened coil.

3

1                   43. The probe of claim 34, wherein the active electrode head  
2 comprises an active electrode coil having from about 0.5 to 1.5 turns.

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1                   44. An electrosurgical probe, comprising:

2                   a shaft having a shaft proximal end portion and a shaft distal end  
3 portion; and

4 an electrode assembly at the shaft distal end portion, the electrode  
5 assembly comprising an active electrode and a return electrode, wherein the return  
6 electrode comprises a return electrode filament and a return electrode head located  
7 at the distal end of the return electrode filament, the return electrode filament  
8 coupled directly to the connection block, wherein the return electrode conducts  
9 electric current from the return electrode head to the connection block as a single  
10 component.

11

1                   45. A return electrode for an electrosurgical probe, comprising:  
2                   a return electrode filament and a return electrode head disposed at the  
3 distal end of the return electrode filament, the return electrode head having an  
4 internal void therein, and the return electrode head allowing the passage of a fluid  
5 therethrough.

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1                   46. The return electrode of claim 45, wherein the return electrode  
2 head comprises a return electrode coil having from about 1 to 50 turns.

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1                   47. The return electrode of claim 45, wherein the return electrode  
2 head is adapted for retaining an electrically conductive fluid thereon.

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49. The return electrode of claim 45, wherein the return electrode filament is adapted for coupling directly to a connection block.

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1 50. An electrosurgical probe, comprising:

2 a shaft having a shaft proximal end portion and a shaft distal end  
3 portion; and

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4                   an electrode assembly at the shaft distal end portion, the electrode  
5                   assembly comprising an active electrode and a return electrode, the return electrode  
6                   including a return electrode filament and a return electrode head, wherein the return  
7                   electrode head is formed by winding a distal end of the return electrode filament  
8                   into a coil.

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